



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
WATER AND WATERSHEDS

April 22, 2016

Ms. Becca A. Conklin
Washington Department of Ecology
Water Quality Program
P.O. Box 47600
Olympia, Washington 98504-7600

Re: EPA's Comments on Proposed Revisions to Washington's Human Health Criteria and New and Revised Implementation Provisions (Proposal Dated February 1, 2016)

Dear Ms. Conklin:

I am writing to submit the U.S. Environmental Protection Agency's comments on the Washington Department of Ecology's proposed human health criteria and new and revised implementation provisions issued on February 1, 2016. If adopted, this proposed rulemaking would revise the following sections of Washington's water quality standards:

- Human Health Criteria and Other Narrative Revisions (WAC 173-201A-240)
- Variances (WAC 173-201A-420)
- Intake Credits (WAC 173-201A-460)
- Compliance Schedules (WAC 173-201A-510(4))
- Implementation Clarification for Combined Sewer Overflows (CSO) Treatment Plants (WAC 173-201A-510(6))

The EPA fully supports Ecology's efforts to adopt human health criteria, and we appreciate the leadership that Ecology and the Governor's Office have shown thus far in developing Washington's human health criteria for toxics. Over the last several years, Ecology undertook an extensive public process to discuss options for rule development. The EPA appreciates that Ecology has gone through a second rule proposal that addresses some of the concerns the EPA raised about Ecology's first proposal dated January 12, 2015. As stated previously, the EPA supports Ecology's effort to use regional and local fish consumption data by proposing to adopt human health criteria based on a fish consumption rate of 175 grams per day. The best available data includes evidence of fish consumption rates well above 6.5 grams per day among high fish consumers in Washington, including tribal members with treaty-protected fishing rights.

The EPA is very supportive and pleased to see that Ecology's 2016 proposed rule retains the state's long-standing cancer risk level of 10^{-6} . Using this cancer risk level to derive the human health criteria for carcinogens sets an appropriate level of protection for all Washington citizens, including tribal members with treaty-protected fishing rights. In addition, using this cancer risk level should contribute to criteria that provide for the attainment and maintenance of the WQS of downstream waters, consistent with the EPA's regulations at 40 CFR 131.10(b).

As noted in previous comments, the EPA continues to have concerns that Ecology is not using the best available science for all the inputs to derive its human health criteria, in a manner that is consistent with the EPA's 2015 CWA section 304(a) recommendations or is based on a scientifically defensible alternative approach. Specifically, Ecology has chosen to use older bioconcentration factors (BCFs) instead of bioaccumulation factors (BAFs), and is not using relative source contributions (RSCs) that account for other contaminant sources in deriving the proposed human health criteria and has not demonstrated the scientific defensibility of these approaches. Although the EPA's updated human health 304(a) recommendations were in draft form at the time of our previous comments on Ecology's 2015 proposal, the EPA finalized those recommendations in June 2015. For more information on the EPA's position on using BAFs and RSCs when calculating human health criteria, please see the EPA's proposed federal rulemaking to update the National Toxics Rule (NTR) for Washington dated September 14, 2015 and our enclosed comments.

It is important to note that the EPA carefully considers the scientific defensibility and protectiveness of both the inputs used to derive criteria and the resulting criteria values, but it is ultimately on the criteria values that the EPA takes approval or disapproval action under CWA Section 303(c). The EPA has compared the criteria values from Ecology's proposal with the EPA's federal proposal, and notes that there may be instances where the state's proposed criteria are as or more stringent despite using BCFs (instead of BAFs) and RSC inputs that are not consistent with the EPA's 304(a) recommendations. The EPA will conduct a similar analysis in its review of any final criteria that Ecology adopts and submits to the EPA.

In addition, the EPA continues to note concerns about the approaches Ecology has used to derive criteria for two specific pollutants – PCBs and arsenic – as well as the lack of a methylmercury criterion in Ecology's proposal. Our enclosed comments provide more information on these pollutants.

Finally, as previously stated in our comments on Ecology's 2015 proposal, the EPA appreciates Ecology's efforts to consider implementation of these criteria by proposing new and revised implementation tools, which are relatively unchanged from the 2015 proposal. The EPA recognizes the importance of implementation tools in making progress toward improved water quality while accounting for the time needed for adaptive management, and remains committed to providing technical assistance to Ecology during implementation.

Enclosed are the EPA's detailed comments for your consideration. We have appreciated our work together throughout this process and remain available to provide technical assistance. If you have any questions concerning our comments or desire the EPA's assistance, please contact me at (206) 553-1855 or Angela Chung at (206) 553-6511.

Sincerely,

A handwritten signature in blue ink, appearing to read "Daniel D. Opalski", is written over a light blue circular stamp.

Daniel D. Opalski, Director
Office of Water and Watersheds

Enclosure

Enclosure

U.S. Environmental Protection Agency, Region 10 Comments on Washington Department of Ecology's Proposed Human Health Criteria and Implementation Tools Rule

April 22, 2016

Public Notice of Proposal Dated February 1, 2016

The Washington Department of Ecology (Ecology) provided draft surface water quality standards (WQS) revisions found at Chapter 173-201A WAC to the public for review and comment on February 1, 2016.¹ With these WQS revisions, Ecology is proposing to adopt human health criteria and revise or establish new implementation tools. This proposed rule has been revised from the state's previous proposed rule, which was public noticed on January 12, 2015. The EPA reviewed this second version of the state's proposed rule and associated documents and provides the following comments for Ecology's consideration. The comments are organized in the same manner as the EPA's comments on Ecology's 2015 proposed rule:

1. Human Health Criteria and Other Narrative Revisions (WAC 173-201A-240)
 - A. Fish Consumption Rate (FCR)
 - B. Cancer risk level
 - C. Relative Source Contribution (RSC)
 - D. Body Weight
 - E. Drinking Water Intake
 - F. Reference Dose (RfD) and Cancer Slope Factor (CSF)
 - G. Bioconcentration Factor (BCF)
 - H. Polychlorinated Biphenyls (PCBs)
 - I. Arsenic
 - J. Methylmercury
 - K. Pollutant Scope
 - L. Downstream Waters and Other Narrative Revisions
2. Implementation tools and definitions
 - A. Variances (WAC 173-201A-420)
 - B. Intake Credits (WAC 173-201A-460)
 - C. Compliance Schedules (WAC 173-201A-510(4))
 - D. Implementation Clarification for Combined Sewer Overflows (CSO) Treatment Plants (WAC 173-201A-510(6))

Please note that the EPA's positions described in the comments below, regarding the state's proposed WQS, are preliminary in nature and do not constitute an approval or disapproval by the EPA under the Clean Water Act (CWA) Section 303(c). Approval and/or disapproval decisions

¹ Department of Ecology. 2016. *Proposed Human Health Criteria and Implementation Tools Rule proposal – public review*. <http://www.ecy.wa.gov/programs/wq/ruledev/wac173201A/1203docs.html>.

will be made by the EPA following adoption of the new and revised standards by the state of Washington and submittal of revisions to the EPA. In addition, the EPA's comments do not constitute, and are not intended to be, an Administrator determination under CWA Section 303(c)(4)(B).

1. Human Health Criteria and Other Narrative Revisions (WAC 173-201A-240)

The state of Washington proposed human health criteria and revisions to certain implementation tools (e.g., variances and compliance schedules) in January 2015. However, in July 2015, Governor Inslee directed Ecology to reconsider its proposed human health criteria and implementation tool revisions given the 2015 Legislature's failure to pass proposed legislation and funding for stronger controls on toxics.

In June 2015, the EPA finalized updates to the Agency's national 304(a) recommendations for the protection of human health for 94 chemical pollutants.² These updated recommendations reflect the latest scientific information and EPA policies, including updated body weight, drinking water consumption rate, FCR, bioaccumulation factors (BAFs), health toxicity values, and RSCs. The EPA accepted written scientific views from the public from May to August 2014 on the draft updated human health criteria and published responses to those comments. The EPA water quality criteria serve as recommendations to states and tribes authorized to establish water quality standards under the CWA.

In September 2015, the EPA published a proposed rule to revise the current federal CWA human health water quality criteria applicable to Washington waters to ensure that the criteria are set at levels that will protect fish consumers in Washington from exposure to toxic pollutants. The EPA initially established Washington's existing human health criteria for toxic pollutants in the 1992 national toxics rule (NTR).³ The EPA's proposed rule updates the FCR based on more recent regional and local fish consumption data, and updates the toxicity and exposure information, consistent with the EPA's 2015 updated 304(a) recommended human health criteria. The public comment period on the EPA's proposed rule ended on December 28, 2015. For more information, visit: <http://www2.epa.gov/wqs-tech/water-quality-standards-regulations-washington>.

In October 2015, Governor Inslee directed Ecology to revise the state's 2015 proposal. Ecology's 2016 proposal incorporates new science and includes several risk management decisions that affect the final criteria values. In particular, Ecology's 2016 proposed rule uses the current cancer risk level in Washington's WQS: one-in-one-million (10^{-6}).

Ecology's 2016 proposal includes human health criteria for 98 different toxic pollutants, which represents all CWA 307(a) priority toxic pollutants, except for methylmercury, for which the EPA has developed 304(a) recommendations for the protection of human health. Ecology added

² Federal Register. Vol. 80, No. 124. June 29, 2015. *Final Updated Ambient Water Quality Criteria for the Protection of Human Health*. <https://www.gpo.gov/fdsys/pkg/FR-2015-06-29/html/2015-15912.htm>.

³ EPA. 1992. *Toxics Criteria for Those States Not Complying with Clean Water Act*, section 303(c)(2)(B). 40 CFR Part 131.36. <http://water.epa.gov/lawsregs/rulesregs/ntr/>. Amended in 1999 for PCBs. <http://water.epa.gov/lawsregs/rulesregs/ntrfact.cfm>.

these proposed criteria values to Table 240 in the state's WQS, which also contains aquatic life criteria. In most cases, Ecology calculated criteria for each pollutant using the EPA's recommended 304(a) human health criteria equations for carcinogens and non-carcinogens with state-selected inputs. However, in the case of human health criteria for arsenic, copper, and asbestos, Ecology derived those values differently using Safe Drinking Water Act Maximum Contaminant Levels and Maximum Contaminant Level Goals.

In addition, Ecology's 2016 proposal includes new and revised implementation tools in the state's WQS. Ecology has revised its compliance schedule and variance provisions as well as added language regarding intake credits and implementation clarification for combined sewer overflow treatment plants (CSOs). With the exception of the provision regarding CSOs, these new and revised implementation tools are similar to the state's 2015 proposal.

Below are the EPA's comments on the individual input parameters that Ecology used to derive its proposed human health criteria along with comments on Ecology's proposed narrative revisions to WAC 173-201A-240. The EPA's comments will assist the state in developing final water quality criteria that protect applicable designated uses and are based on sound scientific rationale consistent with 40 CFR 131.11(a), and protect downstream WQS consistent with 40 CFR 131.10(b).

A. Fish Consumption Rate (FCR)

In Ecology's 2016 proposed rule, the state derived human health criteria using a FCR of 175 grams per day (g/day). Ecology stated that this value is representative of state-specific information and was determined through a process that included consideration of EPA guidance and precedent, and input from multiple stakeholder organizations. Specifically, Ecology stated that this value is representative of FCRs for highly exposed populations that consume both fish and shellfish from Puget Sound waters and is considered an "endorsed" value.⁴

Washington's proposal to use 175 g/day to calculate its revised human health criteria is consistent with the 95th percentile of *A Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin* (Columbia River Inter-Tribal Fish Commission (CRITFC), 1994), and is the same FCR that the EPA used in its September 2015 federal proposal and that the state of Oregon used to derive its human health criteria, which the EPA approved in 2011.⁵ In selecting a FCR, Ecology considered data from local fish consumption surveys.⁶

The EPA remains encouraged that Ecology is choosing to protect high fish consumers in Washington by deriving the state's human health criteria using local and regional fish

⁴ Department of Ecology. January 2016. *Washington State Water Quality Standards: Human Health Criteria and Implementation Tools. Overview of Key Decisions in Rule Amendment*. Publication no. 16-10-006. Page 18. <https://fortress.wa.gov/ecy/publications/documents/1610006.pdf>.

⁵ EPA. October 2011. *Technical Support Document for Action on the State of Oregon's New and Revised Human Health Water Quality Criteria for Toxics and Associated Implementation Provisions Submitted July 12 and 21, 2011*. <http://www.epa.gov/region10/pdf/water/or-tds-hhwqs-2011.pdf>.

⁶ Department of Ecology. *Fish Consumption Rates Technical Support Document*. Final issued in January 2013. Draft issued in October 2011. <http://www.ecy.wa.gov/programs/tcp/regs/fish/2012/FCR-doc.html>.

consumption data. The EPA is also very supportive of the state's decision to include anadromous fish in the FCR used to derive the criteria, which is appropriate given the species that reside in Washington's nearshore and coastal waters, especially Puget Sound. Ecology's approach is consistent with the EPA's recommendation to use scientifically sound regional and local fish consumption data. The EPA acknowledges, however, that the tribes within the state have generally viewed 175 g/day as a compromise minimum value for current criteria-setting purposes, so long as it is coupled with a cancer risk level of 10^{-6} . Based on the EPA's review of existing data in Washington, in conjunction with consultation with the tribes, the EPA supports Washington's decision to derive the human health criteria using a FCR of 175 g/day and retaining a cancer risk level of 10^{-6} (see section B).

B. Cancer Risk Level

The EPA used a cancer risk level of 10^{-6} (1 in 1,000,000) to derive Washington's human health criteria for carcinogens in the 1992 NTR and the 2015 proposed federal rule to update the NTR for Washington. In the 1992 NTR, the EPA selected this cancer risk level with input from Washington, which adopted around the same time a WQS provision that states: "*Risk-based criteria for carcinogenic substances shall be selected such that the upper-bound excess cancer risk is less than or equal to one in a million*" (WAC 173-201A-240(6)), that the EPA approved in 1993. In Ecology's 2016 proposed rule, the state derived human health criteria for carcinogens using a cancer risk level of 10^{-6} (with the exception of PCBs and arsenic). The risk level is identified in the newly formatted toxics criteria table at WAC 173-201A-240.

The EPA's 2000 Human Health Methodology⁷ states that use of a cancer risk level of 10^{-6} or 10^{-5} in the derivation of human health criteria may be an acceptable level of risk for the target general population.⁸ However, the 2000 Human Health Methodology did not consider how CWA decisions should account for applicable treaty-reserved fishing rights in determining the appropriate level of protection. The EPA is very supportive of the state's decision to derive the human health criteria using a FCR of 175 g/day and retain a cancer risk level of 10^{-6} .

Finally, many of Washington's rivers are in the Columbia River basin, upstream of Oregon's portion of the Columbia River. Oregon's criteria are based on a FCR of 175 g/day and a cancer risk level of 10^{-6} . Ecology's proposal to derive human health criteria for Washington using a cancer risk level of 10^{-6} along with a FCR of 175 g/day helps ensure that Washington's criteria will provide for the attainment and maintenance of Oregon's downstream WQS consistent with 40 CFR 131.10(b) (see also Section L).

C. Relative Source Contribution (RSC)

The RSC is a factor applied in development of criteria for non-carcinogens and nonlinear carcinogens, to account for sources of exposure other than drinking water and freshwater and

⁷ EPA. 2000. *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA-822-B-00-004. <http://www.epa.gov/waterscience/criteria/humanhealth/method/complete.pdf>.

⁸ The Methodology also notes that states and authorized Tribes can always choose a more stringent risk level, such as 10^{-7} . Page 1-12.

estuarine fish consumption (e.g., marine fish, non-fish food consumption, dermal exposure). In Ecology's proposed rule, the state derived human health criteria using a RSC value of 1.0. Ecology stated that this is an appropriate risk management decision due to the limited ability of the CWA to control exposure to pollutant sources outside of its jurisdiction. The EPA recommends a ceiling of 0.8 for the RSC to ensure protection of individuals whose exposure could be greater than indicated by current data and to account for unknown sources of exposure. In the EPA's 2015 updated 304(a) recommendations and September 2015 federal proposed rule for Washington, the EPA applied a pollutant-specific RSC value for all of the updated non-carcinogens and nonlinear carcinogens.⁹

The EPA commends Ecology for incorporating anadromous fish, which spend significant portions of their lives in marine waters, in the proposed FCR. This is particularly appropriate since data show adult salmon in Washington can accumulate a substantial fraction of their contaminant body burden during their residence time in Puget Sound (O'Neill and West, 2009) and near coastal marine waters (O'Neill 2006) that are under the jurisdiction of the CWA.^{10, 11} The EPA's human health criteria FAQs clarify that, where a state's FCR includes freshwater, estuarine, and all marine fish consumption, states can adjust the RSC upward to reflect a greater proportion of the reference dose being attributed to marine exposures.¹²

However, even when accounting for anadromous fish in the FCR, Ecology has not adequately justified using a RSC value of 1.0 to derive human health criteria for all non-carcinogens and nonlinear carcinogens, nor has it adequately explained why it is appropriate to disregard all other routes of exposure, including air, soil, other marine fish and shellfish, non-fish food, etc. Therefore, the EPA continues to strongly recommend that Ecology choose an appropriate RSC in the recommended range of 0.2 to 0.8 using the Exposure Decision Tree approach as described in the EPA's 2000 Human Health Methodology and consistent with the EPA's 2015 304(a) recommendations and September 2015 federal proposed rule to calculate human health criteria that are protective of the designated use and based on sound science.

D. Body Weight

In Ecology's proposed rule, the state derived human health criteria using a body weight assumption of 80 kg based on tribal survey data relevant to Washington and the EPA's 2011

⁹ EPA. 2015. *Updated National Recommended Water Quality Criteria – Human Health*. <http://www.epa.gov/wqc/human-health-water-quality-criteria>.

¹⁰ O'Neill, S.M., and J.E. West. 2009. Marine distribution, life history traits, and the accumulation of polychlorinated biphenyls in Chinook salmon from Puget Sound, Washington. *Transactions of the American Fisheries Society* 138: 616-632.

¹¹ O'Neill, S.M., G.M. Ylitalo, J.E. West, J. Bolton, C.A. Sloan, and M.M. Krahn. 2006. Regional patterns of persistent organic pollutants in five Pacific salmon species (*Oncorhynchus spp*) and their contributions to contaminant levels in northern and southern resident killer whales (*Orcinus orca*). 2006 Southern Resident Killer Whale Symposium, NOAA Fisheries Service Northwest Regional Office April 3-5, 2006. Seattle, WA. Extended Abstract. 5pp.

¹² EPA. January 2013. *Human Health Ambient Water Quality Criteria and Fish Consumption Rates: Frequently Asked Questions*. <http://water.epa.gov/scitech/swguidance/standards/criteria/health/methodology/upload/hhfaqs.pdf>.

Exposure Factors Handbook.¹³ The EPA is supportive of Ecology assuming a body weight of 80 kg to derive human health criteria.

A body weight of 80 kg is the EPA's current default body weight assumption in its updated 2015 304(a) recommendations, which is the national mean based on a current survey of the U.S. population and described in the EPA's 2011 Exposure Factors Handbook.¹⁴ Consistent with the EPA's guidance, Ecology is using local and regional specific data in deriving this value.

E. Drinking Water Intake

In Ecology's 2016 proposed rule, the state derived human health criteria using a drinking water intake rate of 2.4 L/day. In the absence of reliable local or regional data, the EPA recommends that the state refer to the most current available national data on drinking water intake rates. The EPA is supportive of Ecology assuming a drinking water intake rate of 2.4 L/day to derive human health criteria. This is consistent with the EPA's 2015 updated 304(a) recommendations where the EPA used a drinking water intake rate of 2.4 L/day, which represents the *per capita* estimate of combined direct and indirect *community water* ingestion at the 90th percentile for adults ages 21 and older.¹⁵

F. Reference Dose (RfD) and Cancer Slope Factor (CSF)

The EPA used updated toxicity values for non-carcinogenic effects (reference doses or RfDs) and carcinogenic effects (cancer slope factors or CSFs) to recalculate its 304(a) recommended human health criteria for certain pollutants various times since 1992. The EPA's Integrated Risk Information System¹⁶ (IRIS) is the primary recommended source for RfD and CSF information; however, in some cases, more current peer-reviewed and publically-available toxicological data are available from other EPA program offices (e.g., Office of Pesticide Programs, Office of Water, Office of Land and Emergency Management), other national and international programs, and state programs. The EPA conducted a systematic search of nine peer-reviewed, publicly available sources to obtain the most current RfDs and CSFs to derive the 2015 304(a) recommendations. For substances that are both carcinogenic non-carcinogenic, the EPA takes an integrated approach and recommends the criteria be based on the more sensitive endpoint, presuming a cancer risk level of 10⁻⁶.

The EPA supports Ecology using the most current RfDs and CSFs that the EPA used in its 2015 304(a) recommendations to derive criteria that reflect the latest scientific information on human health toxicity.

¹³ EPA. 2011. EPA Exposure Factors Handbook. 2011 edition (EPA 600/R-090/052F). <http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252>.

¹⁴ Id.

¹⁵ Id.

¹⁶ EPA. *Integrated Risk Information System (IRIS)*. U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C. www.epa.gov/iris.

Ecology has used this approach with two exceptions – arsenic and 2,3,7,8-TCDD – for which the state is proposing not to use the CSFs consistent with the EPA’s 304(a) recommendations. Arsenic is discussed in further detail in the comments below.

Regarding 2,3,7,8-TCDD, Ecology made the decision to use the most recent IRIS non-cancer reference dose, which was finalized in 2012, for the human health criteria calculation. Ecology states that this is warranted given the uncertainty surrounding the assessment of carcinogenicity and the length of time this toxicity factor has been under review. Ecology needs to provide a rationale for how the resulting criteria for 2,3,7,8-TCDD are scientifically defensible and protective of human health in the state (see also Sections C and G).

G. Bioconcentration Factor (BCF)

In Ecology’s 2015 and 2016 proposed rules, the state derived human health criteria using BCFs. Ecology’s stated rationale is that bioaccumulation factors (BAFs) account for uptake from sources other than water (e.g., sediment, other food sources), and therefore, are overprotective because some of those sources could contain pollutants that come from areas and waters outside of Washington’s CWA jurisdiction (e.g., mercury from air deposition). Pollutants from sources other than the water column can accumulate in fish that people consume, particularly if the pollutants have chemical properties that cause them to accumulate in fish dietary items. To account for bioaccumulation, the EPA’s 2000 Human Health Methodology recommends use of BAFs that account for uptake of a contaminant from all sources by fish and shellfish, rather than BCFs that only account for uptake from the water column. The EPA’s current 2015 304(a) recommendations replace BCFs with BAFs, where data are available. The EPA’s national recommended BAFs are based on peer-reviewed, publicly available data and were developed consistent with the EPA’s 2000 Human Health Methodology and its supporting documents. The EPA published supplemental information on development of the national recommended BAFs in January 2016.¹⁷

BAFs account for biomagnification in the food chain, which is an essential pathway that Ecology is missing by using BCFs. Therefore, the EPA continues to strongly recommend that Ecology adopt final criteria that reflect the latest scientific information on BAFs, as described in the EPA’s 2000 Human Health Methodology, the EPA’s 2015 304(a) recommendations, and the EPA’s September 2015 proposed federal rule for Washington, to calculate human health criteria that are protective of the designated use and based on sound science.

H. Polychlorinated Biphenyls (PCBs)

For PCBs, Ecology has proposed human health criteria that are the same as those currently in effect under the NTR (as revised in 1999): 0.00017 µg/L for both the criteria for water & organisms and organisms only. In developing the proposed criteria, Ecology used a chemical-

¹⁷ EPA. January 2016. *Development of National Bioaccumulation Factors: Supplemental Information for EPA’s 2015 Human Health Criteria Update*. Office of Water, Washington, D.C. EPA 822-R-16-001. <http://www.epa.gov/sites/production/files/2016-01/documents/national-bioaccumulation-factors-supplemental-information.pdf>

specific cancer risk level of 4×10^{-5} or 0.00004, which exclusively applies to PCBs. Ecology states that it chose this cancer risk level for consistency with the level of risk that the Washington Department of Health uses to develop fish advisories for PCBs.¹⁸ When Ecology used the 4×10^{-5} cancer risk level along with its other proposed inputs to calculate PCB criteria, the resulting criteria of 0.00029 µg/L were less stringent than the currently effective 1999 NTR values. However, the state proposed to adopt criteria equivalent to the 1999 NTR criteria for PCBs. Ecology's rationale for this decision is that PCBs are a chemical of concern in Washington and, therefore, Ecology made a chemical-specific decision not to increase the criteria concentrations above current criteria levels.¹⁹

The EPA does not support Ecology using a chemical-specific cancer risk level for PCBs. Instead, the EPA continues to strongly recommend the state calculate human health criteria for all carcinogenic pollutants, including PCBs, using a 10^{-6} cancer risk level, in order to result in criteria that are protective of the designated uses, including the tribal subsistence fishing use as informed by treaty-reserved fishing rights, and based on sound science.

The EPA recognizes that PCBs provide unique challenges due to the fact that they are pervasive, widespread, and long-lasting. However, this does not warrant setting the human health criteria at less stringent levels. The EPA is available to work with Ecology to further discuss PCBs and how they can be addressed through the state's implementation tools.

I. Arsenic

For arsenic, Ecology proposed to adopt a criterion of 10 µg/L, which is the Maximum Contaminant Level (MCL) for arsenic under the Safe Drinking Water Act. Ecology also proposed requirements relating to arsenic pollution minimization. Arsenic is the only pollutant for which Ecology proposed human health criteria less stringent than the values currently in effect under the NTR (0.018 µg/L for water & organism and 0.14 µg/L for organisms only). Ecology has not provided an adequate rationale to explain how 10 µg/L is scientifically defensible for ambient waters, and protective of the state's designated uses.

The EPA recognizes that developing human health criteria for arsenic may be challenging, particularly because naturally occurring levels in Washington could exceed the EPA's recommended criteria. Additionally, the EPA notes that the Agency's IRIS program is currently reassessing the toxicity of arsenic, and is targeting the end of 2017 for completion of that effort. The results of the IRIS reassessment will be helpful for states and the EPA to develop updated human health water quality criteria for arsenic in the future. The EPA is available to work with Ecology to explore other options for deriving protective arsenic criteria, including the consideration of any relevant information released as part of the EPA's arsenic reassessment.

¹⁸ Department of Ecology. January 2016. *Washington State Water Quality Standards: Human Health Criteria and Implementation Tools. Overview of Key Decisions in Rule Amendment*. Publication no. 16-10-006. Page 54. <https://fortress.wa.gov/ecy/publications/documents/1610006.pdf>.

¹⁹ Department of Ecology. January 2016. *Washington State Water Quality Standards: Human Health Criteria and Implementation Tools. Overview of Key Decisions in Rule Amendment*. Publication no. 16-10-006. Page 53. <https://fortress.wa.gov/ecy/publications/documents/1610006.pdf>.

J. Methylmercury

Ecology decided to defer the adoption of human health criteria for methylmercury to allow time to develop a comprehensive implementation plan in a future state rulemaking. Therefore, the state proposes to leave the NTR human health criteria for total mercury in effect for Washington. Ecology has not provided sufficient rationale for why the state is not considering the latest scientific information and not proposing adoption of methylmercury criteria, beyond the difficulties anticipated in implementation.

In 2001, the EPA updated its 304(a) recommended methylmercury criterion for protection of human health after considering the latest science and data regarding health effects from intake of mercury and the primary routes of exposure. The 2001 methylmercury criterion is expressed as a fish tissue concentration and replaced the EPA's previous recommended water column concentration for total mercury.²⁰ Regarding implementation of a fish tissue criterion for methylmercury, the EPA published guidance in 2010 to assist states and tribes.²¹ The EPA recognizes that there are unique challenges with implementing fish tissue criteria as opposed to water column criteria. The EPA recommends that Ecology consider the information available in the EPA's methylmercury criterion implementation guidance and is available to offer assistance in determining how best to implement a methylmercury fish tissue criterion in Washington.

The EPA continues to recommend that Ecology adopt methylmercury criteria consistent with the EPA's 2001 304(a) recommendations that are protective of the designated use and based on sound science.

K. Pollutant Scope

Ecology proposed human health criteria for all CWA Section 307(a) priority toxic pollutants, with the exception of methylmercury. The number of distinct pollutants in Ecology's proposal outnumbers the pollutants in the NTR because Ecology included additional priority pollutants for which the EPA developed 304(a) recommended criteria since last revising the NTR. The EPA also has 304(a) recommendations for several non-priority pollutants, but Ecology did not propose to adopt criteria for any non-priority pollutants.

The EPA recommends Ecology consider adopting human health criteria for the non-priority pollutants for which the EPA developed 304(a) recommendations. Although the state's existing narrative criterion for toxic pollutants at WAC 173-201A-240(1) provides coverage for these pollutants, the EPA recommends that states use numeric criteria instead of narrative criteria when available, consistent with 40 CFR 131.11(b). In the event Ecology has data or information suggesting that any of these pollutants do not warrant concern in Washington's waters, the EPA understands that Ecology could choose not to adopt human health criteria for those select non-

²⁰ EPA. January 2001. *Water Quality Criterion for the Protection of Human Health: Methylmercury*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA 823-R-01-001. http://water.epa.gov/scitech/swguidance/standards/criteria/health/upload/2009_01_15_criteria_methylmercury_mercury-criterion.pdf.

²¹ EPA. April 2010. *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA 823-R-10-001. <http://water.epa.gov/scitech/swguidance/standards/criteria/health/upload/mercury2010.pdf>.

priority pollutants but believes Ecology should explain the rationale for not choosing to adopt such criteria.

L. Downstream Waters and Other Narrative Revisions

Ecology made several revisions to the provisions at WAC 173-201A-240, which provide background and organize the toxic substances section of Washington's WQS.

The EPA has no comments on Ecology's revisions to WAC 173-201A-240(3), (4), (5), and (5)(a). These revisions help clarify and organize the proposed rule.

The EPA has specific comments on WAC 173-201A-240(5)(b). In general, the EPA supports Ecology's revisions to this provision, which explain the purpose of the criteria, criteria derivation, and the format of Table 240. However, the EPA would like to address the proposed language regarding protection of downstream waters in further detail.

Ecology proposed to add the following language:

"All waters shall maintain a level of water quality when entering downstream waters that provides for the attainment and maintenance of the water quality standards of those downstream waters, including the waters of another state."

This is consistent with the EPA's regulation at 40 CFR 131.10(b). In addition, the EPA's 2014 guidance on Protection of Downstream Waters states that:

*"Adoption of narrative criteria or numeric criteria (or both) that are protective of downstream waters are viable options under 40 CFR 131.10(b). States/tribes have discretion in choosing their preferred approach. The EPA expects that many states/tribes will consider using a combination of narrative and numeric criteria depending on their circumstances."*²²

The EPA's guidance also suggests that states and tribes can consider a more tailored and specific narrative criterion and/or a numeric criterion in certain situations, such as when more stringent numeric criteria are in place downstream and/or environmental justice issues are relevant.

Most of Washington's rivers are in the Columbia River basin and are, therefore, upstream of Oregon's portion of the Columbia River. In addition, the Columbia River constitutes most of the Washington–Oregon border. The EPA recommends that Ecology adopt numeric human health criteria (either in addition to or instead of narrative criteria), consistent with our comments in this letter, that ensure the attainment and maintenance of Oregon's downstream WQS, or to provide additional rationale detailing how the use of a narrative downstream protection criterion alone will protect Oregon's more stringent WQS. For waters flowing into Oregon, criteria that are equally stringent as or more stringent than Oregon's human health criteria would better ensure the attainment and maintenance of Oregon's downstream WQS consistent with 40 CFR

²² EPA. June 2014. *Protection of Downstream Waters in Water Quality Standards: Frequently Asked Questions*. <http://water.epa.gov/scitech/swguidance/standards/library/upload/downstream-faqs.pdf>.

131.10(b). This aligns with the EPA's previous statements regarding a desire for regional consistency in human health criteria among Region 10 states.

In addition, Ecology has moved language previously contained at WAC 173-201A-240(6), which pertains to protection from carcinogens at a one-in-one-million cancer risk level, to this section. Consistent with the comments above on the cancer risk level, the EPA is supportive of this language. The remainder of the rule language regarding duration of exposure, metals, and the obligation of dischargers to use all known, available and reasonable methods of prevention, control and treatment (AKART) help clarify and organize the proposed rule.

2. Implementation Tools and Definitions

Ecology proposed to revise procedures/authorizing provisions for two of the state's existing implementation tools (variances and compliance schedules) and added a new tool for intake credits. Ecology has also added an implementation clarification for combined sewer overflows (CSO) from treatment plants. In addition, the state proposed to adopt a definition for each of these implementation tools at WAC 173-201A-020.

As explained in further detail below, the EPA does not consider the intake credit rule (Section B) and provision regarding CSOs (Section D) to be WQS under CWA Section 303(c); rather they are NPDES permitting implementation provisions. Consistent with 40 Part 123.62 and Section VII.B. of the NPDES MOA between the EPA and Ecology, Ecology must notify the Regional Administrator and shall transmit to the EPA regulatory revisions that affect the NPDES permitting program. The EPA will determine whether the proposed change(s) triggers a revision to the state's approved program.

Below are the EPA's comments on each of the implementation tools Ecology proposed to revise and adopt, to assist the state in ensuring the final implementation tools are approvable under CWA Section 303(c), if applicable.

A. Variances (WAC 173-201A-420)

Ecology proposed to add a new definition at WAC 173-201A-020 to define variances and substantially revise the state's variance procedures at WAC 173-201A-420. The revised procedures establish minimum qualifications for granting variances for individual dischargers, stretches of waters, and multiple dischargers.

Ecology is still required to submit each individual variance to the EPA for review and action before it is effective for purposes of the CWA because the variances themselves are new or revised WQS. Accordingly, each variance submitted for the EPA's review must include the Attorney General's certification and be consistent with the CWA and the EPA's implementing regulations, including all applicable public participation requirements. Thus, the EPA's review of Ecology's variance procedures at WAC 173-201A-420 need not evaluate each hypothetical variance the state could issue under this regulation and consider whether such a variance would be consistent with the CWA and the EPA's implementing regulation. If the EPA does approve

Ecology's variance procedures, the EPA's approval would not be an automatic approval of any future variance the state wishes to grant.

In August 2015, the EPA finalized water quality standards regulatory revisions that included specific federal requirements for variances at 40 CFR 131.14.²³ Keeping in mind those revisions, below are the EPA's comments on Ecology's revisions to its variance provision and definition of variance:

1. Ecology proposed to remove its current five-year term limit on variances. Instead, Ecology expects the timeframe of a variance not to exceed the term of the permit, except under certain circumstances. If a variance term is issued for more than five years, Ecology proposed that the Department will complete mandatory five-year reviews. In general, the EPA supports this revision to the timeframe for variances as we recognize that there may be reasonable durations other than the term of a permit. The EPA will review each individual variance submittal and supporting information from Ecology and consider the justification for the term of the variance when making CWA approval/disapproval decisions.
2. Consistent with the regulations at 131.14, we recommend specifying that the variance will expire if Ecology does not submit the results of their five-year reevaluation to the EPA within 30 days.
3. In 5(a), the provision appears to indicate that a variance will be adopted for as long as it takes to meet the underlying designated use. To reiterate, a variance should be for the time necessary to meet the highest attainable condition where there is some level of certainty. The reason Ecology would use a variance and not a compliance schedule is because there is uncertainty surrounding meeting the underlying standard. If there is not uncertainty, then a compliance schedule is likely more appropriate.
4. The EPA is supportive of Ecology's proposed language regarding public process (noting that a variance is a new or revised WQS and, therefore, must meet the 131.20(b) requirements), pollutant minimization plans, and conditions in which variances would be considered for renewal (as long as reasonable progress toward meeting the underlying WQS is being made), shortened, or terminated.
5. Ecology also proposed consideration of variances for individual dischargers, multiple dischargers, and waterbodies. The EPA anticipates working closely with the state, especially for multiple discharger variances or waterbody variances, to ensure that each variance meets all applicable federal requirements. The EPA suggests that Ecology review the EPA's FAQs on multiple discharger variances.²⁴

²³ EPA. August 21, 2015. *Water Quality Standards Regulatory Revisions; Final Rule (40 CFR Part 131)*. Federal Register Vol. 80, No. 162. 51019-51050. <https://www.gpo.gov/fdsys/pkg/FR-2015-08-21/html/2015-19821.htm>.

²⁴ EPA. March 2013. *Discharger-specific Variances on a Broader Scale: Developing Credible Rationales for Variances that Apply to Multiple Dischargers. Frequently Asked Questions*. <http://water.epa.gov/scitech/swguidance/standards/upload/Discharger-specific-Variances-on-a-Broader-Scale-Developing-Credible-Rationales-for-Variances-that-Apply-to-Multiple-Dischargers-Frequently-Asked-Questions.pdf>.

6. Once Ecology submits its final variance procedures, the EPA will review the specified sections of Ecology's variance procedures as a "general policy" under 40 CFR 131.13 and will base its review on whether the procedure is consistent with the CWA and federal regulations.

B. Intake Credits (WAC 173-201A-460)

Ecology proposed to add a new provision at WAC 173-201A-460 and an associated definition at WAC 173-201A-020 that addresses situations where a pollutant that a facility discharges also exists in the facility's intake water. The proposed new language addresses National Pollutant Discharge Elimination System (NPDES) permit requirements for point sources that do not increase the mass of a background pollutant above their intake water levels. This language is patterned after the language from the EPA's Great Lakes Initiative (GLI) as promulgated at 40 CFR 132, Appendix F, Procedure 5.D and 5.E.

The EPA does not consider this new implementation tool to be a WQS under CWA Section 303(c); rather it is an NPDES permitting implementation provision. The EPA provided comments on the 2015 proposed provision, and it appears Ecology has addressed our previous comments.

1. Ecology's proposed language at WAC 173-201A-460(2)(a) parallels, in part, the GLI language. Specifically, the rule provides that water quality-based effluent limits (WQBELs) may be established "so there is no net addition of the pollutant in the discharge compared to the intake water" if certain specified conditions are met. This provision is similar to the GLI's "No Net Addition" (NNA), and the conditions are essentially parallel to those included in the GLI provision. This revision from the previous version is consistent with the EPA's earlier comments.
2. In general, the restrictions on the use of the intake credit provision seem to be as protective as the GLI. Ecology appears to have addressed the EPA's primary comments from the previous draft version of this provision proposed in 2015 when it comes to separating out the two types of intake credit provisions in the GLI (Reasonable Potential and NNA provisions).

C. Compliance Schedules (WAC 173-201A-510(4))

Ecology proposed to add a new definition at WAC 173-201A-020 to define compliance schedules and revise the compliance schedule authorizing provision at WAC 173-201A-510(4). This revised provision removes the specific time limit for compliance schedules and describes circumstances when a compliance schedule can go beyond the term of a permit and ensures that compliance is achieved as soon as possible. The Washington legislature directed Ecology to extend the maximum length of compliance schedules to more than ten years when appropriate (RCW 90.48.605). Ecology also added language to describe the interaction with TMDLs.

The EPA considers Ecology's compliance schedule authorizing provision to be a new or revised WQS and, therefore, expects to take action on the revisions under CWA Section 303(c).

However, unlike individual variances, which must be approved by the EPA, the use of individual compliance schedules is not subject to the EPA's approval under CWA Section 303(c). The EPA maintains NPDES permit oversight, however, to ensure, among other things, that compliance schedules are implemented in a manner consistent with the CWA.

The EPA supports Ecology's new definition for compliance schedules. Below are the EPA's comments on Ecology's revisions to its compliance schedule provision:

1. The EPA requests that Ecology clarify that compliance schedules cannot be established for WQS themselves. Instead, compliance schedules can be authorized for WQBELs that are based on certain WQS.
2. The EPA compared the proposed provision to the language in federal regulations at 40 CFR 122.47(a)(1), which requires "compliance as soon as possible...". Ecology's proposed provision retains language in its current provision, which requires compliance "in the shortest practicable time." Without a definition of "practicable," it is not clear whether "practicable" means the same thing as "possible." The EPA's concern is that it could be implemented in a manner less stringent than "possible." Ecology uses these terms interchangeably throughout the compliance schedule authorizing provision and supporting documentation. The EPA recommends that Ecology use "possible" throughout to ensure the provision is as stringent as federal regulations.
3. The EPA acknowledges that Ecology proposed to replace its existing maximum compliance schedule duration of ten years with language specifying that compliance schedules shall generally not exceed the term of the permit at WAC 173-201A-510(4)(d). This is consistent with applicable EPA guidance²⁵ and applicable NPDES regulations so long as compliance schedules are authorized to meet a NPDES permit's WQBELs *as soon as possible*.
4. The EPA supports Ecology's decision to delete WAC 173-201A-510(4)(a)(v) from its existing compliance schedule provision. This language regarding "resolution of pending water quality standards issues" is inconsistent with the EPA's guidance and applicable law. In addition, the EPA supports the language Ecology proposed to add to WAC 173-201A-510 (4)(b)(iv). This language clarifies that compliance schedules can be issued for the completion of water quality studies only if such studies are related to implementation of permit requirements to meet WQBELs. Without this clarification, it was unclear if Ecology envisioned such studies to include support for a Use Attainability Analysis (UAA) or a site-specific criteria revision, which would be inconsistent with the EPA's guidance and applicable NPDES regulations.
5. Based on direction from the Washington Legislature, Ecology proposed language regarding how compliance schedules interact with TMDLs at WAC 173-201A-510(4)(e). This new language explains situations in which Ecology can determine a longer time

²⁵ EPA. May 10, 2007. *Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits*. Memorandum from James A. Hanlon, Director, Office of Wastewater Management. <http://water.epa.gov/lawsregs/guidance/wetlands/upload/signed-hanlon-memo.pdf>.

period is needed to come into compliance with WQBELs based on applicable WQS beyond the term of a NPDES permit. In any of these situations, the actions specified in the compliance schedule must be sufficient to achieve WQBELs based on WQS *as soon as possible* according to WAC 173-201A-510(4)(e)(iv). This is consistent with the EPA's guidance and applicable NPDES regulations.

6. Lastly, the EPA acknowledges that Ecology constructed the compliance schedule provision to apply to aquatic life uses (WAC 173-201A-510(4)(a)(i)) and uses other than aquatic life (WAC 173-201A-510(4)(a)(ii)). If Ecology adopts this proposed rule language, the state can implement the compliance schedule authorizing provision upon the EPA's approval, without ESA consultation, only for uses other than aquatic life.

D. Implementation Clarification for Combined Sewer Overflows (CSO) Treatment Plants (WAC 173-201A-510(6))

Ecology proposed to add a new provision at WAC 173-201A-510(6) and an associated definition at WAC 173-201A-020 to clarify implementation of human health criteria in NPDES permits for CSO treatment plants. Ecology states that the proposed language does not change current practices.

The EPA supports Ecology's new definition for CSO treatment plants. Ecology relies on federal regulations at 40 CFR 122.44(k) which allow the use of best management practices (BMP) in NPDES permits if it is not feasible to calculate numeric limits. Due to episodic and short-term CSO discharges, Ecology states it is not feasible to calculate numeric effluent limits that are based on criteria with durations of exposure up to 70 years.

However, the EPA does not consider the new provision at WAC 173-201A-510(6) to be a new or revised WQS under CWA Section 303(c); rather it is an NPDES permitting implementation provision. These provisions provide clarity for the implementation of the human health criteria in NPDES permits, but do not change the underlying human health criteria.

From a permitting perspective, the EPA does not believe this new provision is necessary given the existing flexibilities in guidance. Where effluent pollutant concentration data and numeric criteria exist, Ecology must evaluate for RP. There are flexibilities already identified in EPA and Ecology guidance²⁶ to use appropriate averaging periods, dilution design conditions, and point of application of the criteria as ways to address the long duration associated with human health criteria. CSO BMPs (nine minimum controls) are already required to be in CSO permits as technology-based effluent limits (TBELs). In addition, the EPA's CSO policy²⁷ (codified under CWA 402(q)) requires that controlled CSO discharges not cause or contribute to exceedances of the WQS.

²⁶ EPA. March 1991. *Technical Support Document for Water Quality-based Toxics Control*. Section 4.6. Office of Water. <https://www3.epa.gov/npdes/pubs/owm0264.pdf>; Department of Ecology. January 2015. *Water Quality Program Permit Writer's Manual*. Page 137 and pages 254-258. <https://fortress.wa.gov/ecy/publications/publications/92109.pdf>

²⁷ Federal Register. Vol. 59, No. 75. April 19, 1994. *Combined Sewer Overflow (CSO) Control Policy*. <https://www3.epa.gov/npdes/pubs/owm0111.pdf>.